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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,882	07/19/2006	Lutz F. Schweiger	088736-0113	9918
22428 7590 01/31/2011 FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007				
EXAMINER MCDOWELL, BRIANE				
ART UNIT		PAPER NUMBER		
1624				
MAIL DATE		DELIVERY MODE		
01/31/2011		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/573,882

**Applicant(s)**

SCHWEIGER ET AL.

**Examiner**

BRIAN MCDOWELL

**Art Unit**

1624

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 November 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,93-96 and 98-114 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,93-96 and 98-114 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-945)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 11/8/2010
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/8/2010 has been entered.

#### ***Status of Claims***

Claims 1, 93-96, and 98-114 are pending in the instant application and are under examination.

#### ***Status of Rejections***

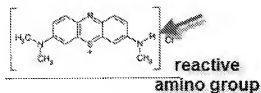
##### ***35 USC § 103***

**The 103 rejection of currently pending claims 1, 93-96, and 98-114 is still maintained for the reasons stated previously of record and herein.**

Applicant's arguments, see Remarks, filed 11/8/2010, with respect to the rejection set forth in the Final Office Action mailed 12/10/2009, have been fully considered but are not found persuasive.

The majority of applicant's arguments stem from the assertion that the prior art is silent on the *N*-alkylation of aromatic amines and that the office has failed to establish a *prima facie* case of obviousness. The examiner respectfully disagrees.

The assertion that the prior art only teaches isotopic labelling of aliphatic amines does not tip the scales of patentability towards the claimed process. The reactive functional group involved in the claimed process is the secondary amine of azure B and not the fused aromatic rings as applicants are suggesting (see below):



To reiterate, the claimed process involves the alkylation of the above compound with [<sup>11</sup>C]methyl trifluoromethanesulfonate, also known as [<sup>11</sup>C]methyl triflate, under standard basic conditions (e.g., a Bronsted base).

Nagren explicitly suggested that the preparation of PET radioligands by *N*-methylation of amines may be accomplished by using radiolabelled alkylating reagents such as [<sup>11</sup>C]methyl triflate and [<sup>11</sup>C]-methyl iodide under mild conditions (e.g., methylation of the free base using a mild base, see page 837, third paragraph). Furthermore, Nagren suggested that [<sup>11</sup>C]methyl triflate provided faster reaction times and lower reaction temperatures when compared with [<sup>11</sup>C]-methyl iodide (see page 838). Thus, one of ordinary skill would have been motivated to employ the [<sup>11</sup>C]methyl triflate in the claimed method. As applicant had pointed out, the prior art teaches that incorporating [<sup>11</sup>C]methyl triflate instead of [<sup>11</sup>C]-methyl iodide as a labeled precursor in the synthesis of commonly used PET radioligands which contain secondary amines

afford higher yields and shorter reaction times (see abstract of Nagren et al., 1995, *Nucl. Med. Biol.*, Vol. 22, No. 2, pp 235-239 for example).

In summary, based on the preponderance of evidence, the skilled artisan would have been motivated and successful in employing the highly reactive [ $^{11}\text{C}$ ]methyl triflate as an *N*-alkylating agent in the preparation of PET radioligands such as azure B. If applicant is still convinced by the argument that at the time the invention was conceived that aromatic amines are not amenable to SN2 reactions; the examiner would like to point to applicant's attention Yeadon *et al.*, *J. Chem. Educ.* Vol. 48, pp. 256. The aforementioned document does indeed show that aromatic amines may readily undergo SN2 reactions with electrophiles (see 1st paragraph, pp 256). In addition, the new recitation of "Bronsted base" does not obviate the rejection of record since the definition of a "Bronsted base" is a substance which may accept a proton (such as NaOH, bicarbonate, etc. which are common bases used and taught in the art).

As mentioned in the final office action, claims citing reaction conditions and purification methods are considered routine practices in the field of synthetic chemistry and would fall under routine experimentation.

*"Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235(CCPA 1955)*

***Conclusion***

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN MCDOWELL whose telephone number is (571)270-5755. The examiner can normally be reached on Monday-Thursday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. James O. Wilson can be reached 571-272-0661. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. M./  
Examiner, Art Unit 1624

**/James O. Wilson/  
Supervisory Patent Examiner, AU 1624**

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